CLAIMS

1. A three-dimensional object comprising a plurality of cured resin layers accumulated to each other, each of the cured resin layers having a shaped pattern formed by irradiating a molding surface of an actinic radiation-curable resin composition with an actinic radiation,

wherein the three-dimensional object comprises at least cured resin layer comprising a sea-island microstructure in which island components are dispersed in a sea component comprising a cured polymer, the island components comprise a polymer differing from the cured resin constituting the sea component, and the island components are fine island components having a particle diameter of 20 to 2,000 nm.

2. The three-dimensional object as claimed in claim 1, wherein all of the plurality of cured resin layers constituting the three-dimensional object have the sea-island microstructure in which island components are dispersed in a sea component comprising a cured polymer, the island components comprise a polymer differing from the cured resin constituting the sea component, and the island components are fine island components having a particle diameter of 20 to 2,000 nm.

3. The three-dimensional object as claimed in claim 1 or 2, wherein each of the cured resin layers constituting the three-dimensional object has a thickness of 10 to 500 μm.

4. The three-dimensional object as claimed in any of claims 1 to 3, wherein, in each of the cured resin layers having the sea-island microstructure, the island components do not exist in an upper portion of the each of the cured resin layers, the upper portion being located in an actinic radiation-irradiated surface of the each of the cured resin layers, and the island components exist in a portion from the bottom part of the each of the cured resin layers to an upward part along the thickness direction of the

each of the cured resin layers.

5. The three-dimensional object as claimed in claim 4, wherein the upper portion containing no island component has a thickness of 2 to 10% with respect to the thickness of the each of the cured resin layers.

6. The three-dimensional object as claimed in any of claims 1 to 5, wherein each of the cured resin layers having the sea-island microstructure has a sum of the island components of 1 to 30 % by mass with respect to the mass of the each of the cured resin layers.

7. The three-dimensional object as claimed in any of claims 1 to 6, wherein the polymer constituting the island components has a glass transition temperature of lower than 40°C.

8. The three-dimensional object as claimed in any of claims 1 to 7, wherein the polymer constituting the island components is a polyalkylene ether compound having a number average molecular weight of 500 to 10,000.

9. The three-dimensional object as claimed in any of claims 1 to 8, wherein the sea component comprises the cured resin formed by using at least one actinic radiation-polymerizable compound selected from the group consisting of a cationic-polymerizable organic compound capable of undergoing cationic polymerization upon irradiation with an actinic radiation and a radical-polymerizable organic compound capable of undergoing radical polymerization upon irradiation with an actinic radiation.

10. The three-dimensional object as claimed in any of claims 1 to 9, wherein the sea component comprises the cured resin formed by using both of a

cation-polymerizable organic compound and a radical-polymerizable organic compound.

11. The three-dimensional object as claimed in claim 9 or 10, wherein the cation-polymerizable organic compound is a compound having an epoxy group, and the radical-polymerizable organic compound is a compound having a (meth)acryl group.

12. A method of producing a three-dimensional object having a sea-island microstructure as claimed in claim 1, which comprises:

irradiating a molding surface of an actinic radiation-curable resin composition with an actinic radiation to form a cured resin layer having a shaped pattern; and

repeating a fabricating procedure comprising: providing an actinic radiation-curable resin composition for one layer on a cured resin layer to form a molding surface; and irradiating the molding surface with an actinic radiation to form a cured resin layer having a shape pattern, so as to produce the three-dimensional object comprising a plurality of cured resin layers accumulated,

wherein the fabricating procedure is performed by using an actinic radiation-curable resin composition comprising a homogeneous mixture of actinic radiation-curable resin component with a component to become polymeric island components having a particle diameter of 20 to 2,000 nm upon irradiation, and the actinic radiation-curable resin component is capable of forming a cured resin as a sea component upon the irradiation.

13. The method as claimed in claim 12, wherein the actinic radiation-curable resin composition comprises: at least one actinic radiation-polymerizable compound as the cured resin of the sea component, the at lease one active ray-polymerizable compound being selected from the group consisting of a cationic-polymerizable organic compound capable of undergoing cationic polymerization upon irradiation with an actinic radiation and a radical-polymerizable organic compound capable of undergoing radical

polymerization upon irradiation with an actinic radiation; and a polyalkylene ether compound of 500 to 10,000 as the polymer to become the polymeric island components.

14. The method as claimed in claim 12 or 13, wherein the cationic-polymerizable organic compound is a compound having an epoxy group, and the radical-polymerizable organic compound is a compound having a (meth)acryl group.

15. The method as claimed in any of claims 12 to 14, wherein a content of the polymer to become the polymeric island components is from 1 to 30 % by mass with respect to the mass of the actinic radiation-curable resin composition used for forming the cured resin layer having the sea-island microstructure.

16. The method as claimed in any of claims 12 to 15, wherein the actinic radiation-curable resin composition comprises an oxetane compound together with a cationic-polymerizable organic compound having an epoxy group.